

## REMARKS

Claims 1-28 are pending. Claims 1-14 are rejected.

Claims 15-28 are new. Support for the new claims is found, for example, on pages 13 and 14 of the specification. Applicants note that if alternative elements are positively recited in the specification, they may be explicitly excluded in the claims. MPEP 2173.05(i). In the instant specification, Applicants have disclosed embodiments in which the point of attachment to a metallic surface is not cyclic (Figures 2A & 2B; pages 13 and 14, especially Structures 44 to 47) and cyclic (Figures 3F & 3G; page 25, line 7; Structure 48). Thus, the negative limitation explicitly recited in claim 15 is proper in view of the present disclosure. New claims 15-28 are added notwithstanding the arguments below and do not affect the scope of claims 1-14, which have not been amended in spite of the Examiner's rejections.

Applicants thank the Examiner for withdrawal of the claim rejections under 35 USC 112 and under 35 USC 102(e) over *Bauer*.

Reconsideration of claim rejections in light of the following remarks is respectfully requested.

### Amendment to the Specification

The specification on page 1, lines 8-10 has been amended to change the relationship between the instant application and a previously filed application. The instant application is now a *divisional* of US Application No. 09/847,113 (now US Patent No. 6,753,143, issued June 22, 2004). The amendment to the specification and an amended application data sheet have been timely submitted according to MPEP 201.11(V), 37 CFR 1.78(a)(2)(i) and 37 CFR 1.78(a)(2)(iii).

In the Final Office Action, the Examiner did not indicate that the amendment to the specification of the previous Amendment had been entered. Furthermore, the Examiner states that "this application is a CON of 09/847,1113[.]" Applicants therefore respectfully resubmit their request for entry of the amendment to the benefit claim to recite that the present application is a *divisional* of US Application No. 09/847,113.

**Claim Rejections under 35 USC 102**

The Examiner has maintained the rejection of claims 1-14 under 35 USC 102(e) as allegedly being anticipated by US Patent 6,203,758 to Marks et al.

Claim 1 recites a method of modifying a metallic surface comprising contacting the metallic surface with an asymmetric monolayer forming species (AMFS) having the formula MFS-A-A-AG. Applicants respectfully maintain that the AMFS MFS-A-A-AG is not taught by *Marks*. The Examiner states that MFS-A-A-AG “core” is present in the cyclic disulfide in Figure 5C of *Marks*. Applicants disagree.

The Examiner states that the feature in which the MFS is not directly attached to the AG is not recited in the claims. However, the use of chemical formulae to show the relationship between the moieties of a claimed chemical structure is well established. Although Applicants have not literally recited that the MFS is not directly attached to the AG, this feature is clearly shown in the chemical formula in claim 1. The formula for the AMFS in claim 1 shows that the MFS is directly attached to a first A and is not attached to any other part of the AMFS. Similarly, the formula in claim 1 shows that the AG is directly attached to a second A and is not attached to any other part of the AMFS. Thus, the formula in claim 1 shows that both the MFS and the AG are each attached to only **one** moiety, that is, one of two different attachment linkers.

Figure 5C of *Marks*, on the other hand, shows an ethyl group whose one end is attached to a first sulfur and whose other end is attached to an alkyl group attached to a second sulfur. Thus, whether one considers the ethyl group to be an MFS or an AG, that ethyl group is attached to **two** different moieties.

Viewed differently, Figure 5C may be said to depict a secondary amide terminating in an -X-butyl moiety. The -X-butyl moiety is attached to both a sulfur and an ethyl moiety. Thus, whether one considers the secondary amide to be an MFS or an AG, that secondary amide is attached to **two** different moieties.

Viewed still differently, Figure 5C may be said to depict a secondary amide terminating in an -X-hexyl moiety. In that case, whether the secondary amide is considered an MFS or an AG, the secondary amide is attached to two different sulfurs

and hence **two** different moieties. Furthermore, if the secondary amide in this case is considered an MFS, then the AG is entirely missing, and *vice versa*.

Thus, it is not true that “the core MFS-A-A-AG [] is present” in *Marks* since MFS-A-A-AG is not the same as nor does it “include” a cyclic disulfide, as reasoned above. Applicants respectfully invite the Examiner to **specifically** point out which features of Figure 5C correspond to the features of the formula of claim 1 or else to provide **specific** reasons why the claimed structure is taught in *Marks*. Otherwise, Applicants maintain that the formula in claim 1 and Figure 5C of *Marks* do not show the same structure. Anticipation requires that the reference teach each and every element of the claim and Figure 5C does not teach the structure of claim 1. The fact that claim 1 recites an AMFS “having” the formula depicted does not change the fact that Figure 5C does not teach the structure of claim 1. Figure 5C of *Marks* thus does not anticipate the claims.

Applicants also note that the chemistry of attachment of the structure in Figure 5C is different from that of the structure depicted in claim 1. Figure 17 of the instant specification shows that upon attachment of the asymmetric monolayer forming species CT105 to the electrode, the two sulfurs of the species are no longer covalently bonded to each other, resulting in “monopodal” attachments to the electrode. By contrast, when a species ending in a cyclic moiety such as that in Figure 5C attaches to an electrode, the resulting attachment is “multipodal.” See Structure 48 on page 25 of the instant specification. The fact that the claimed structure and Figure 5C of *Marks* have different chemistries of attachment to an electrode attests to the structural differences between these two types of compounds.

With respect to claims 2 and 16, *Marks* does not teach a method comprising contacting said metallic surface with an additional biological species having the formula A-MFS-capture binding ligand (CBL). Since claims 2 and 16 depend from claims 1 and 15 respectively, performing the steps of claims 2 or 16 would result in an electrode to which are attached at least three different species. Following the teachings of *Marks* would not result in an electrode with the same number of different attachments according to the claims. Furthermore, claim 2 and 16 recite contacting said metallic surface with a

biological species having the formula A-MFS-CBL. *Marks*, however, teaches in one embodiment that there is “a direct bond between the binding entity and the surface of the micro-electrode” (col. 12, lines 46-48) and that when the electrode is gold, “preferably the binding entity is derivatized with a thiol functional group” (col. 12, lines 51-52). In other words, *Marks* teaches contacting HS-binding entity with an electrode. In a second embodiment in Example 2, column 14, lines 29-33, *Marks* teaches a method in which “the spacer arm molecules which form the hydrogen-bonded monolayer are attached to the micro-electrode surface first, and then the binding entity is attached directly to the spacer arm molecules themselves rather than to the micro-electrode surface as in Example 1.” Thus, *Marks* teaches contacting the electrode with an entity that does not have a binding entity. In contrast, claims 2 and 16 recite contacting said metallic surface with a biological species having the formula A-MFS-CBL. *Marks* therefore does not teach the methods of either claim 2 or 16.

In sum, *Marks* does not teach the structure recited in claim 1 and so does not teach the claimed method of contacting a metallic surface with the structure. *Marks* therefore does not anticipate claim 1 and hence does not anticipate claims 2-14 dependent therefrom. Furthermore, *Marks* does not teach methods according to claims 2 and 16. Applicants respectfully request that the Examiner withdraw the rejection of claims 1-14 over *Marks*.

### **Conclusion**

Applicants believe the claims are in a condition for allowance. Early notification thereof is respectfully requested. The Examiner is invited to call the undersigned at 415.442.1000 to resolve any questions.

The Commissioner is authorized to charge any additional fees, including extension fees, that may be required or to credit any overpayment to Deposit Account No. 50-0310 (Docket No. 067456-5036-US01).

Respectfully submitted,

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Date

January 28, 2008

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